CLAIMS

1-19. (cancelled)

20. (currently amended). A short-coherence interferometer for measuring partial distances of the eye which focuses the measurement beam on the respective coherence window and/or reduces required interferometer mirror scan distances to distances that are less than distances which must be measured, comprising:

at least one deflecting element with a deflecting angle α; and

elements of focusing optics in the short-coherence interferometer carrying out a periodic back-and-forth movement so that the measurement beam focus which is generated by the focusing optics and imaged on the eye by relay optics is moved synchronously with the coherence window from the cornea along the optic axis of the eye to the retina ~~(fovea centralis)~~, and back.

21. (currently amended) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein at least one deflecting element ~~during its movement~~moves to directs the measurement beam or reference beam sequentially to a series of reflectors arranged in a staggered manner with respect to depth and/or laterally.

22. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 21, wherein the position of the reflectors which are arranged in a staggered manner with respect to depth and laterally is adjustable and/or the positioning is carried out in an adaptive manner according to previously determined reference positions of the eye interfaces.

23. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein at least one deflecting element and the focusing optics are arranged one behind the other and/or next to one another in the movement direction on a table of a scanning device that is moved periodically back and forth.

24. (currently amended) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein at least one deflecting element and the focusing optics

are arranged one behind the other and/or next to one another at a desired angle to the movement direction on ~~the~~ a table of a scanning device that is moved periodically back and forth.

25. (currently amended) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein the measurement beam focus generated by the focusing optics is imaged on the eye by relay optics, wherein the corneal vertex is arranged exactly or approximately at a distance from the relay optics, where f is the focal length of the relay optics, L is the optical length of the eye, D is the distance of the reflectors associated with the cornea and fovea centralis.

26. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein the measurement beam focus generated by the focusing optics is moved back and forth periodically by a distance somewhat greater than L – D (L = optical length of the eye; D = distance of the reflectors associated with the cornea and fovea centralis).

27. (currently amended) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein the short-coherence interferometer is split ~~splitting~~ into ~~the~~ an interferometer measurement arm and a reference arm ~~of the short-coherence interferometer~~ which is carried out by means of one or more fiber-optic couplers.

28. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein at least one deflecting element and elements of the focusing optics are mounted next to one another in the movement direction or at an angle to the movement direction on separate scanning devices which are moved periodically back and forth.

29. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein at least one deflecting element and elements of the focusing optics are mounted on separate scanning devices which are moved periodically back and forth, and the movements of the two scanning devices are electronically synchronized, or the movements can be modified in function relative to one another.

30. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein the scanning device is a scanning table controlled by a stepper motor or piezo-motor, a voice coil scanner, or an ultrasound piezo-scanning table.

31. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein a collecting lens, a dispersion lens or an optical system comprising a plurality of fixed or variable elements is used as focusing optics.

32. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein a so-called rapid scan optical delay line or other path length modulator is also used with the interferometer in the reference arm or measurement arm.

33. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein the initial coincidence of the measurement focus and coherence window is placed approximately in the center of the anterior chamber of the eye or at another desired location by additional means for adjusting an optical element in the beam path, e.g., by means of a mirror.

34. (previously presented) The short-coherence interferometer according to claim 33, wherein the additional means for adjusting an optical element in the beam path is a mirror.

35. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein the scan travel is reduced by optical folding of the reference beam path and/or measurement beam path.

36. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein a dispersion compensation is carried out automatically by traversing wedge plates which are arranged in the reference beam path parallel to the movement direction, and the compensating action therefore depends on the displacement position.

37. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein means are provided for adjusting or orienting the measurement beam axis relative to the optical axis or to the visual axis of the eye.

38. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein a construction based on the dual beam method is used.

39. (previously presented) The short-coherence interferometer for measuring partial distances of the eye according to claim 20, wherein a right-angle mirror or right-angle prism is provided as deflecting element.